

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
2 August 2001 (02.08.2001)

PCT

(10) International Publication Number  
WO 01/55303 A2

(51) International Patent Classification <sup>7</sup> :	C12N	60/225,214	14 August 2000 (14.08.2000)	US	
		60/226,279	18 August 2000 (18.08.2000)	US	
(21) International Application Number:	PCT/US01/01301	60/226,868	22 August 2000 (22.08.2000)	US	
		60/227,182	22 August 2000 (22.08.2000)	US	
(22) International Filing Date:	17 January 2001 (17.01.2001)	60/226,681	22 August 2000 (22.08.2000)	US	
		60/227,009	23 August 2000 (23.08.2000)	US	
(25) Filing Language:	English	60/228,924	30 August 2000 (30.08.2000)	US	
		60/229,344	1 September 2000 (01.09.2000)	US	
(26) Publication Language:	English	60/229,343	1 September 2000 (01.09.2000)	US	
		60/229,287	1 September 2000 (01.09.2000)	US	
(30) Priority Data:		60/229,345	1 September 2000 (01.09.2000)	US	
60/179,065	31 January 2000 (31.01.2000)	US	60/229,513	5 September 2000 (05.09.2000)	US
60/180,628	4 February 2000 (04.02.2000)	US	60/229,509	5 September 2000 (05.09.2000)	US
60/184,664	24 February 2000 (24.02.2000)	US	60/230,438	6 September 2000 (06.09.2000)	US
60/186,350	2 March 2000 (02.03.2000)	US	60/230,437	6 September 2000 (06.09.2000)	US
60/189,874	16 March 2000 (16.03.2000)	US	60/231,413	8 September 2000 (08.09.2000)	US
60/190,076	17 March 2000 (17.03.2000)	US	60/232,080	8 September 2000 (08.09.2000)	US
60/198,123	18 April 2000 (18.04.2000)	US	60/231,414	8 September 2000 (08.09.2000)	US
60/205,515	19 May 2000 (19.05.2000)	US	60/231,244	8 September 2000 (08.09.2000)	US
60/209,467	7 June 2000 (07.06.2000)	US	60/232,081	8 September 2000 (08.09.2000)	US
60/214,886	28 June 2000 (28.06.2000)	US	60/231,242	8 September 2000 (08.09.2000)	US
60/215,135	30 June 2000 (30.06.2000)	US	60/231,243	8 September 2000 (08.09.2000)	US
60/216,647	7 July 2000 (07.07.2000)	US	60/231,968	12 September 2000 (12.09.2000)	US
60/216,880	7 July 2000 (07.07.2000)	US	60/232,401	14 September 2000 (14.09.2000)	US
60/217,487	11 July 2000 (11.07.2000)	US	60/232,399	14 September 2000 (14.09.2000)	US
60/217,496	11 July 2000 (11.07.2000)	US	60/232,400	14 September 2000 (14.09.2000)	US
60/218,290	14 July 2000 (14.07.2000)	US	60/232,397	14 September 2000 (14.09.2000)	US
60/220,963	26 July 2000 (26.07.2000)	US	60/233,063	14 September 2000 (14.09.2000)	US
60/220,964	26 July 2000 (26.07.2000)	US	60/233,064	14 September 2000 (14.09.2000)	US
60/225,757	14 August 2000 (14.08.2000)	US	60/233,065	14 September 2000 (14.09.2000)	US
60/225,270	14 August 2000 (14.08.2000)	US	60/232,398	14 September 2000 (14.09.2000)	US
60/225,447	14 August 2000 (14.08.2000)	US	60/234,223	21 September 2000 (21.09.2000)	US
60/225,267	14 August 2000 (14.08.2000)	US	60/234,274	21 September 2000 (21.09.2000)	US
60/225,758	14 August 2000 (14.08.2000)	US	60/234,997	25 September 2000 (25.09.2000)	US
60/225,268	14 August 2000 (14.08.2000)	US	60/234,998	25 September 2000 (25.09.2000)	US
60/224,518	14 August 2000 (14.08.2000)	US	60/235,484	26 September 2000 (26.09.2000)	US
60/224,519	14 August 2000 (14.08.2000)	US	60/235,834	27 September 2000 (27.09.2000)	US
60/225,759	14 August 2000 (14.08.2000)	US	60/235,836	27 September 2000 (27.09.2000)	US
60/225,213	14 August 2000 (14.08.2000)	US	60/236,369	29 September 2000 (29.09.2000)	US
60/225,266	14 August 2000 (14.08.2000)	US			

[Continued on next page]

WO 01/55303 A2

(54) Title: NUCLEIC ACIDS, PROTEINS, AND ANTIBODIES

(57) Abstract: The present invention relates to novel lung related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "lung antigens", and the use of such lung antigens for detecting disorders of the lung, particularly the presence of lung cancer and lung cancer metastases. More specifically, isolated lung associated nucleic acid molecules are provided encoding novel lung associated polypeptides. Novel lung polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human lung associated polynucleotides and/or polypeptides. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the lung, including lung cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and function of the polypeptides of the present invention.



60/236,327	29 September 2000 (29.09.2000)	US	60/251,479	6 December 2000 (06.12.2000)	US
60/236,370	29 September 2000 (29.09.2000)	US	60/251,869	8 December 2000 (08.12.2000)	US
60/236,368	29 September 2000 (29.09.2000)	US	60/251,856	8 December 2000 (08.12.2000)	US
60/236,367	29 September 2000 (29.09.2000)	US	60/251,868	8 December 2000 (08.12.2000)	US
60/237,039	2 October 2000 (02.10.2000)	US	60/251,990	8 December 2000 (08.12.2000)	US
60/237,038	2 October 2000 (02.10.2000)	US	60/251,989	8 December 2000 (08.12.2000)	US
60/237,040	2 October 2000 (02.10.2000)	US	60/254,097	11 December 2000 (11.12.2000)	US
60/237,037	2 October 2000 (02.10.2000)	US	60/259,678	5 January 2001 (05.01.2001)	US
60/236,802	2 October 2000 (02.10.2000)	US			
60/239,937	13 October 2000 (13.10.2000)	US	(71) Applicant (for all designated States except US): <b>HUMAN GENOME SCIENCES, INC.</b> [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).		
60/239,935	13 October 2000 (13.10.2000)	US			
60/241,785	20 October 2000 (20.10.2000)	US	(72) Inventors; and		
60/241,809	20 October 2000 (20.10.2000)	US	(75) Inventors/Applicants (for US only): <b>ROSEN, Craig, A.</b> [US/US]; 22400 Rolling Hill Lane, Laytonsville, MD 20882 (US). <b>BARASH, Steven, C.</b> [US/US]; 111 Watkins Pond Blvd., #301, Rockville, MD 20850 (US). <b>RUBEN, Steven, M.</b> [US/US]; 18528 Heritage Hills Drive, Olney, MD 20832 (US).		
60/240,960	20 October 2000 (20.10.2000)	US			
60/241,787	20 October 2000 (20.10.2000)	US	(74) Agents: <b>HOOVER, Kenley, K.</b> et al.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).		
60/241,808	20 October 2000 (20.10.2000)	US			
60/241,221	20 October 2000 (20.10.2000)	US	(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.		
60/241,786	20 October 2000 (20.10.2000)	US			
60/241,826	20 October 2000 (20.10.2000)	US	(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).		
60/244,617	1 November 2000 (01.11.2000)	US			
60/246,474	8 November 2000 (08.11.2000)	US	<b>Published:</b>		
60/246,532	8 November 2000 (08.11.2000)	US	— without international search report and to be republished upon receipt of that report		
60/246,476	8 November 2000 (08.11.2000)	US	— with sequence listing part of description published separately in electronic form and available upon request from the International Bureau		
60/246,526	8 November 2000 (08.11.2000)	US			
60/246,527	8 November 2000 (08.11.2000)	US	(48) Date of publication of this corrected version:		
60/246,475	8 November 2000 (08.11.2000)	US	7 September 2001		
60/246,525	8 November 2000 (08.11.2000)	US			
60/246,477	8 November 2000 (08.11.2000)	US	(15) Information about Correction:		
60/246,528	8 November 2000 (08.11.2000)	US	see PCT Gazette No. 36/2001 of 7 September 2001, Section II		
60/246,611	8 November 2000 (08.11.2000)	US			
60/246,610	8 November 2000 (08.11.2000)	US	For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.		
60/246,613	8 November 2000 (08.11.2000)	US			
60/246,609	8 November 2000 (08.11.2000)	US			
60/246,478	8 November 2000 (08.11.2000)	US			
60/246,524	8 November 2000 (08.11.2000)	US			
60/246,523	8 November 2000 (08.11.2000)	US			
60/249,299	17 November 2000 (17.11.2000)	US			
60/249,210	17 November 2000 (17.11.2000)	US			
60/249,216	17 November 2000 (17.11.2000)	US			
60/249,217	17 November 2000 (17.11.2000)	US			
60/249,211	17 November 2000 (17.11.2000)	US			
60/249,215	17 November 2000 (17.11.2000)	US			
60/249,218	17 November 2000 (17.11.2000)	US			
60/249,208	17 November 2000 (17.11.2000)	US			
60/249,213	17 November 2000 (17.11.2000)	US			
60/249,212	17 November 2000 (17.11.2000)	US			
60/249,207	17 November 2000 (17.11.2000)	US			
60/249,245	17 November 2000 (17.11.2000)	US			
60/249,244	17 November 2000 (17.11.2000)	US			
60/249,297	17 November 2000 (17.11.2000)	US			
60/249,214	17 November 2000 (17.11.2000)	US			
60/249,264	17 November 2000 (17.11.2000)	US			
60/249,209	17 November 2000 (17.11.2000)	US			
60/249,300	17 November 2000 (17.11.2000)	US			
60/249,265	17 November 2000 (17.11.2000)	US			
60/250,391	1 December 2000 (01.12.2000)	US			
60/250,160	1 December 2000 (01.12.2000)	US			
60/256,719	5 December 2000 (05.12.2000)	US			
60/251,030	5 December 2000 (05.12.2000)	US			
60/251,988	5 December 2000 (05.12.2000)	US			

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
2 August 2001 (02.08.2001)

PCT

(10) International Publication Number  
WO 01/55303 A2

(51) International Patent Classification <sup>7</sup> :	C12N	60/225,214	14 August 2000 (14.08.2000)	US
(21) International Application Number:	PCT/US01/01301	60/226,279	18 August 2000 (18.08.2000)	US
(22) International Filing Date: 17 January 2001 (17.01.2001)		60/226,868	22 August 2000 (22.08.2000)	US
(25) Filing Language:	English	60/227,182	22 August 2000 (22.08.2000)	US
(26) Publication Language:	English	60/226,681	22 August 2000 (22.08.2000)	US
(30) Priority Data:		60/227,009	23 August 2000 (23.08.2000)	US
60/179,065	31 January 2000 (31.01.2000)	60/228,924	30 August 2000 (30.08.2000)	US
60/180,628	4 February 2000 (04.02.2000)	60/229,344	1 September 2000 (01.09.2000)	US
60/184,664	24 February 2000 (24.02.2000)	60/229,343	1 September 2000 (01.09.2000)	US
60/186,350	2 March 2000 (02.03.2000)	60/229,287	1 September 2000 (01.09.2000)	US
60/189,874	16 March 2000 (16.03.2000)	60/229,345	1 September 2000 (01.09.2000)	US
60/190,076	17 March 2000 (17.03.2000)	60/229,513	5 September 2000 (05.09.2000)	US
60/198,123	18 April 2000 (18.04.2000)	60/229,509	5 September 2000 (05.09.2000)	US
60/205,515	19 May 2000 (19.05.2000)	60/230,438	6 September 2000 (06.09.2000)	US
60/209,467	7 June 2000 (07.06.2000)	60/230,437	6 September 2000 (06.09.2000)	US
60/214,886	28 June 2000 (28.06.2000)	60/231,413	8 September 2000 (08.09.2000)	US
60/215,135	30 June 2000 (30.06.2000)	60/232,080	8 September 2000 (08.09.2000)	US
60/216,647	7 July 2000 (07.07.2000)	60/231,414	8 September 2000 (08.09.2000)	US
60/216,880	7 July 2000 (07.07.2000)	60/231,244	8 September 2000 (08.09.2000)	US
60/217,487	11 July 2000 (11.07.2000)	60/232,081	8 September 2000 (08.09.2000)	US
60/217,496	11 July 2000 (11.07.2000)	60/231,242	8 September 2000 (08.09.2000)	US
60/218,290	14 July 2000 (14.07.2000)	60/231,243	8 September 2000 (08.09.2000)	US
60/220,963	26 July 2000 (26.07.2000)	60/231,968	12 September 2000 (12.09.2000)	US
60/220,964	26 July 2000 (26.07.2000)	60/232,401	14 September 2000 (14.09.2000)	US
60/225,757	14 August 2000 (14.08.2000)	60/232,399	14 September 2000 (14.09.2000)	US
60/225,270	14 August 2000 (14.08.2000)	60/232,400	14 September 2000 (14.09.2000)	US
60/225,447	14 August 2000 (14.08.2000)	60/232,397	14 September 2000 (14.09.2000)	US
60/225,267	14 August 2000 (14.08.2000)	60/233,063	14 September 2000 (14.09.2000)	US
60/225,758	14 August 2000 (14.08.2000)	60/233,064	14 September 2000 (14.09.2000)	US
60/225,268	14 August 2000 (14.08.2000)	60/233,065	14 September 2000 (14.09.2000)	US
60/224,518	14 August 2000 (14.08.2000)	60/232,398	14 September 2000 (14.09.2000)	US
60/224,519	14 August 2000 (14.08.2000)	60/234,223	21 September 2000 (21.09.2000)	US
60/225,759	14 August 2000 (14.08.2000)	60/234,274	21 September 2000 (21.09.2000)	US
60/225,213	14 August 2000 (14.08.2000)	60/234,997	25 September 2000 (25.09.2000)	US
60/225,266	14 August 2000 (14.08.2000)	60/234,998	25 September 2000 (25.09.2000)	US
		60/235,484	26 September 2000 (26.09.2000)	US
		60/235,834	27 September 2000 (27.09.2000)	US
		60/235,836	27 September 2000 (27.09.2000)	US
		60/236,369	29 September 2000 (29.09.2000)	US

[Continued on next page]

WO 01/55303 A2

(54) Title: NUCLEIC ACIDS, PROTEINS, AND ANTIBODIES

(57) Abstract: The present invention relates to novel lung related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "lung antigens", and the use of such lung antigens for detecting disorders of the lung, particularly the presence of lung cancer and lung cancer metastases. More specifically, isolated lung associated nucleic acid molecules are provided encoding novel lung associated polypeptides. Novel lung polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human lung associated polynucleotides and/or polypeptides. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the lung, including lung cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and function of the polypeptides of the present invention.



60/236,327	29 September 2000 (29.09.2000)	US	60/251,479	6 December 2000 (06.12.2000)	US
60/236,370	29 September 2000 (29.09.2000)	US	60/251,869	8 December 2000 (08.12.2000)	US
60/236,368	29 September 2000 (29.09.2000)	US	60/251,856	8 December 2000 (08.12.2000)	US
60/236,367	29 September 2000 (29.09.2000)	US	60/251,868	8 December 2000 (08.12.2000)	US
60/237,039	2 October 2000 (02.10.2000)	US	60/251,990	8 December 2000 (08.12.2000)	US
60/237,038	2 October 2000 (02.10.2000)	US	60/251,989	8 December 2000 (08.12.2000)	US
60/237,040	2 October 2000 (02.10.2000)	US	60/254,097	11 December 2000 (11.12.2000)	US
60/237,037	2 October 2000 (02.10.2000)	US	60/259,678	5 January 2001 (05.01.2001)	US
60/236,802	2 October 2000 (02.10.2000)	US			
60/239,937	13 October 2000 (13.10.2000)	US			
60/239,935	13 October 2000 (13.10.2000)	US			
60/241,785	20 October 2000 (20.10.2000)	US			
60/241,809	20 October 2000 (20.10.2000)	US			
60/240,960	20 October 2000 (20.10.2000)	US			
60/241,787	20 October 2000 (20.10.2000)	US			
60/241,808	20 October 2000 (20.10.2000)	US			
60/241,221	20 October 2000 (20.10.2000)	US			
60/241,786	20 October 2000 (20.10.2000)	US			
60/241,826	20 October 2000 (20.10.2000)	US			
60/244,617	1 November 2000 (01.11.2000)	US			
60/246,474	8 November 2000 (08.11.2000)	US			
60/246,532	8 November 2000 (08.11.2000)	US			
60/246,476	8 November 2000 (08.11.2000)	US			
60/246,526	8 November 2000 (08.11.2000)	US			
60/246,527	8 November 2000 (08.11.2000)	US			
60/246,475	8 November 2000 (08.11.2000)	US			
60/246,525	8 November 2000 (08.11.2000)	US			
60/246,477	8 November 2000 (08.11.2000)	US			
60/246,528	8 November 2000 (08.11.2000)	US			
60/246,611	8 November 2000 (08.11.2000)	US			
60/246,610	8 November 2000 (08.11.2000)	US			
60/246,613	8 November 2000 (08.11.2000)	US			
60/246,609	8 November 2000 (08.11.2000)	US			
60/246,478	8 November 2000 (08.11.2000)	US			
60/246,524	8 November 2000 (08.11.2000)	US			
60/246,523	8 November 2000 (08.11.2000)	US			
60/249,299	17 November 2000 (17.11.2000)	US			
60/249,210	17 November 2000 (17.11.2000)	US			
60/249,216	17 November 2000 (17.11.2000)	US			
60/249,217	17 November 2000 (17.11.2000)	US			
60/249,211	17 November 2000 (17.11.2000)	US			
60/249,215	17 November 2000 (17.11.2000)	US			
60/249,218	17 November 2000 (17.11.2000)	US			
60/249,208	17 November 2000 (17.11.2000)	US			
60/249,213	17 November 2000 (17.11.2000)	US			
60/249,212	17 November 2000 (17.11.2000)	US			
60/249,207	17 November 2000 (17.11.2000)	US			
60/249,245	17 November 2000 (17.11.2000)	US			
60/249,244	17 November 2000 (17.11.2000)	US			
60/249,297	17 November 2000 (17.11.2000)	US			
60/249,214	17 November 2000 (17.11.2000)	US			
60/249,264	17 November 2000 (17.11.2000)	US			
60/249,209	17 November 2000 (17.11.2000)	US			
60/249,300	17 November 2000 (17.11.2000)	US			
60/249,265	17 November 2000 (17.11.2000)	US			
60/250,391	1 December 2000 (01.12.2000)	US			
60/250,160	1 December 2000 (01.12.2000)	US			
60/256,719	5 December 2000 (05.12.2000)	US			
60/251,030	5 December 2000 (05.12.2000)	US			
60/251,988	5 December 2000 (05.12.2000)	US			

(71) Applicant (for all designated States except US): **HUMAN GENOME SCIENCES, INC.** [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ROSEN, Craig, A.** [US/US]; 22400 Rolling Hill Lane, Laytonsville, MD 20882 (US). **BARASH, Steven, C.** [US/US]; 111 Watkins Pond Blvd., #301, Rockville, MD 20850 (US). **RUBEN, Steven, M.** [US/US]; 18528 Heritage Hills Drive, Olney, MD 20832 (US).

(74) Agents: **HOOVER, Kenley, K.** et al.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- without international search report and to be republished upon receipt of that report
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau

(48) Date of publication of this corrected version:

7 September 2001

(15) Information about Correction:

see PCT Gazette No. 36/2001 of 7 September 2001, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
2 August 2001 (02.08.2001)

PCT

(10) International Publication Number  
**WO 01/55303 A3**

(51) International Patent Classification <sup>7</sup> : C07H 21/02, 21/04, C07K 5/00, 14/00, C12Q 1/68, C12P 21/06, C12N 1/20, 15/63, 5/00			60/225,266	14 August 2000 (14.08.2000)	US
			60/225,214	14 August 2000 (14.08.2000)	US
			60/226,279	18 August 2000 (18.08.2000)	US
			60/226,868	22 August 2000 (22.08.2000)	US
(21) International Application Number: PCT/US01/01301			60/227,182	22 August 2000 (22.08.2000)	US
			60/226,681	22 August 2000 (22.08.2000)	US
(22) International Filing Date: 17 January 2001 (17.01.2001)			60/227,009	23 August 2000 (23.08.2000)	US
			60/228,924	30 August 2000 (30.08.2000)	US
(25) Filing Language: English			60/229,344	1 September 2000 (01.09.2000)	US
			60/229,343	1 September 2000 (01.09.2000)	US
(26) Publication Language: English			60/229,287	1 September 2000 (01.09.2000)	US
			60/229,345	1 September 2000 (01.09.2000)	US
(30) Priority Data:			60/229,513	5 September 2000 (05.09.2000)	US
			60/229,509	5 September 2000 (05.09.2000)	US
60/179,065	31 January 2000 (31.01.2000)	US	60/230,438	6 September 2000 (06.09.2000)	US
60/180,628	4 February 2000 (04.02.2000)	US	60/230,437	6 September 2000 (06.09.2000)	US
60/184,664	24 February 2000 (24.02.2000)	US	60/231,413	8 September 2000 (08.09.2000)	US
60/186,350	2 March 2000 (02.03.2000)	US	60/232,080	8 September 2000 (08.09.2000)	US
60/189,874	16 March 2000 (16.03.2000)	US	60/231,414	8 September 2000 (08.09.2000)	US
60/190,076	17 March 2000 (17.03.2000)	US	60/231,244	8 September 2000 (08.09.2000)	US
60/198,123	18 April 2000 (18.04.2000)	US	60/232,081	8 September 2000 (08.09.2000)	US
60/205,515	19 May 2000 (19.05.2000)	US	60/231,242	8 September 2000 (08.09.2000)	US
60/209,467	7 June 2000 (07.06.2000)	US	60/231,243	8 September 2000 (08.09.2000)	US
60/214,886	28 June 2000 (28.06.2000)	US	60/231,968	12 September 2000 (12.09.2000)	US
60/215,135	30 June 2000 (30.06.2000)	US	60/232,401	14 September 2000 (14.09.2000)	US
60/216,647	7 July 2000 (07.07.2000)	US	60/232,399	14 September 2000 (14.09.2000)	US
60/216,880	7 July 2000 (07.07.2000)	US	60/232,400	14 September 2000 (14.09.2000)	US
60/217,487	11 July 2000 (11.07.2000)	US	60/232,397	14 September 2000 (14.09.2000)	US
60/217,496	11 July 2000 (11.07.2000)	US	60/233,063	14 September 2000 (14.09.2000)	US
60/218,290	14 July 2000 (14.07.2000)	US	60/233,064	14 September 2000 (14.09.2000)	US
60/220,963	26 July 2000 (26.07.2000)	US	60/233,065	14 September 2000 (14.09.2000)	US
60/220,964	26 July 2000 (26.07.2000)	US	60/232,398	14 September 2000 (14.09.2000)	US
60/225,757	14 August 2000 (14.08.2000)	US	60/234,223	21 September 2000 (21.09.2000)	US
60/225,270	14 August 2000 (14.08.2000)	US	60/234,274	21 September 2000 (21.09.2000)	US
60/225,447	14 August 2000 (14.08.2000)	US	60/234,997	25 September 2000 (25.09.2000)	US
60/225,267	14 August 2000 (14.08.2000)	US	60/234,998	25 September 2000 (25.09.2000)	US
60/225,758	14 August 2000 (14.08.2000)	US	60/235,484	26 September 2000 (26.09.2000)	US
60/225,268	14 August 2000 (14.08.2000)	US	60/235,834	27 September 2000 (27.09.2000)	US
60/224,518	14 August 2000 (14.08.2000)	US	60/235,836	27 September 2000 (27.09.2000)	US
60/224,519	14 August 2000 (14.08.2000)	US	60/236,369	29 September 2000 (29.09.2000)	US
60/225,759	14 August 2000 (14.08.2000)	US	60/236,327	29 September 2000 (29.09.2000)	US
60/225,213	14 August 2000 (14.08.2000)	US	60/236,370	29 September 2000 (29.09.2000)	US

[Continued on next page]

WO 01/55303 A3

(54) Title: NUCLEIC ACIDS, PROTEINS, AND ANTIBODIES

(57) Abstract: The present invention relates to novel lung related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "lung antigens", and the use of such lung antigens for detecting disorders of the lung, particularly the presence of lung cancer and lung cancer metastases. More specifically, isolated lung associated nucleic acid molecules are provided encoding novel lung associated polypeptides. Novel lung polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human lung associated polynucleotides and/or polypeptides. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the lung, including lung cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and function of the polypeptides of the present invention.



60/236,368	29 September 2000 (29.09.2000)	US	60/251,869	8 December 2000 (08.12.2000)	US
60/236,367	29 September 2000 (29.09.2000)	US	60/251,856	8 December 2000 (08.12.2000)	US
60/237,039	2 October 2000 (02.10.2000)	US	60/251,868	8 December 2000 (08.12.2000)	US
60/237,038	2 October 2000 (02.10.2000)	US	60/251,990	8 December 2000 (08.12.2000)	US
60/237,040	2 October 2000 (02.10.2000)	US	60/251,989	8 December 2000 (08.12.2000)	US
60/237,037	2 October 2000 (02.10.2000)	US	60/254,097	11 December 2000 (11.12.2000)	US
60/236,802	2 October 2000 (02.10.2000)	US	60/259,678	5 January 2001 (05.01.2001)	US
60/239,937	13 October 2000 (13.10.2000)	US			
60/239,935	13 October 2000 (13.10.2000)	US			
60/241,785	20 October 2000 (20.10.2000)	US	(71) <b>Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC.</b> [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US).		
60/241,809	20 October 2000 (20.10.2000)	US			
60/240,960	20 October 2000 (20.10.2000)	US	(72) <b>Inventors; and</b>		
60/241,787	20 October 2000 (20.10.2000)	US	(75) <b>Inventors/Applicants (for US only): ROSEN, Craig, A.</b> [US/US]; 22400 Rolling Hill Lane, Laytonsville, MD 20882 (US). <b>BARASH, Steven, C.</b> [US/US]; 111 Watkins Pond Blvd., #301, Rockville, MD 20850 (US). <b>RUBEN, Steven, M.</b> [US/US]; 18528 Heritage Hills Drive, Olney, MD 20832 (US).		
60/241,808	20 October 2000 (20.10.2000)	US			
60/241,221	20 October 2000 (20.10.2000)	US	(74) <b>Agents: HOOVER, Kenley, K. et al.;</b> Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).		
60/241,786	20 October 2000 (20.10.2000)	US			
60/241,826	20 October 2000 (20.10.2000)	US	(81) <b>Designated States (national):</b> AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.		
60/244,617	1 November 2000 (01.11.2000)	US			
60/246,474	8 November 2000 (08.11.2000)	US	(84) <b>Designated States (regional):</b> ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).		
60/246,532	8 November 2000 (08.11.2000)	US			
60/246,476	8 November 2000 (08.11.2000)	US			
60/246,526	8 November 2000 (08.11.2000)	US			
60/246,527	8 November 2000 (08.11.2000)	US			
60/246,475	8 November 2000 (08.11.2000)	US			
60/246,525	8 November 2000 (08.11.2000)	US			
60/246,477	8 November 2000 (08.11.2000)	US			
60/246,528	8 November 2000 (08.11.2000)	US			
60/246,611	8 November 2000 (08.11.2000)	US			
60/246,610	8 November 2000 (08.11.2000)	US			
60/246,613	8 November 2000 (08.11.2000)	US			
60/246,609	8 November 2000 (08.11.2000)	US			
60/246,478	8 November 2000 (08.11.2000)	US			
60/246,524	8 November 2000 (08.11.2000)	US			
60/246,523	8 November 2000 (08.11.2000)	US			
60/249,299	17 November 2000 (17.11.2000)	US			
60/249,210	17 November 2000 (17.11.2000)	US			
60/249,216	17 November 2000 (17.11.2000)	US			
60/249,217	17 November 2000 (17.11.2000)	US			
60/249,211	17 November 2000 (17.11.2000)	US			
60/249,215	17 November 2000 (17.11.2000)	US			
60/249,218	17 November 2000 (17.11.2000)	US			
60/249,208	17 November 2000 (17.11.2000)	US			
60/249,213	17 November 2000 (17.11.2000)	US			
60/249,212	17 November 2000 (17.11.2000)	US			
60/249,207	17 November 2000 (17.11.2000)	US			
60/249,245	17 November 2000 (17.11.2000)	US			
60/249,244	17 November 2000 (17.11.2000)	US			
60/249,297	17 November 2000 (17.11.2000)	US			
60/249,214	17 November 2000 (17.11.2000)	US			
60/249,264	17 November 2000 (17.11.2000)	US			
60/249,209	17 November 2000 (17.11.2000)	US			
60/249,300	17 November 2000 (17.11.2000)	US			
60/249,265	17 November 2000 (17.11.2000)	US			
60/250,391	1 December 2000 (01.12.2000)	US			
60/250,160	1 December 2000 (01.12.2000)	US			
60/256,719	5 December 2000 (05.12.2000)	US			
60/251,030	5 December 2000 (05.12.2000)	US			
60/251,988	5 December 2000 (05.12.2000)	US			
60/251,479	6 December 2000 (06.12.2000)	US			

**Published:**

- with international search report
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau

(88) **Date of publication of the international search report:**  
20 December 2001

**(15) Information about Correction:**

**Previous Correction:**

see PCT Gazette No. 36/2001 of 7 September 2001, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/01301

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : Please See Extra Sheet. US CL : Please See Extra Sheet. According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 536/23.1, 23.5, 24.31; 530/300, 350; 435/6, 69.1, 252.3, 320.1, 325 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Extra Sheet.		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Database: EST; Accession NO: AA315247; Adams et al.; "Lung Homo sapiens cDNA 5' end, mRNA sequence"; 19 April 1997; having 97.8% sequence identity to SEQ ID NO: 11; vector: pBluescript SK-; see entire document.	1-7, 21
X	Database: PIR_68; Accession NO: S30385; Milner et al. "Human G9a protein"; 06 January 1995; having 26% sequence identity to SEQ ID NO: 103; see entire document.	1-7, 21
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
*A*	document defining the general state of the art which is not considered to be of particular relevance	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*E*	earlier document published on or after the international filing date	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*L*	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*O*	document referring to an oral disclosure, use, exhibition or other means	*Z* document member of the same patent family
*P*	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 15 JULY 2001		Date of mailing of the international search report 28 AUG 2001
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer RITA MITRA Telephone No. (703) 305-3230 TERRY J. DEY PARALEGAL SPECIALIST TECHNOLOGY CENTER 1600

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/01301

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-10, 14, 15 and 21, all in part

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.



# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/01301

## A. CLASSIFICATION OF SUBJECT MATTER: IPC (7):

C07H 21/02, 21/04; C07K 5/00, 14/00; C12Q 1/68; C12P 21/06; C12N 1/20; C12N 15/63; C12N 5/00

## A. CLASSIFICATION OF SUBJECT MATTER: US CL :

536/23.1, 23.5, 24.31; 530/300, 350; 435/6, 69.1, 252.3, 320.1, 325

## B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

Sequence Search (Database; GenEmbl, N\_Geneseq\_0401, Issued\_Patents\_NA, EST, A\_Geneseq\_0401, Issued\_Patents\_AA, PIR\_67, SwissProt\_39, SPTREMBL\_15)

EAST (Database: USPAT, EPO, JPO, Derwent)

STN (Database: biosis, caplus, embase, medline, scisearch)

search Terms: polynucleotides, polypeptides, lung antigen

## BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Groups 1-92, claims 1-10, 14, 15 and 21, all in part, drawn to an isolated nucleic acid of SEQ ID NO X or a peptide of SEQ ID NO: Y, wherein X and Y are values that correlate to those listed in Table 1A, and correspond to one of the cDNA Clone IDs, respectively. For examples,

If group 1 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein X is 11 and Y is 103.

If group 2 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein X is 12 and Y is 104.

Groups 93-184, claims 11, 12 and 16, all in part, each group directed to a peptide of SEQ ID NO: Y, wherein Y correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 93 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein Y is 103.

If group 94 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein Y is 104.

Groups 185-276 claim 13, in part, drawn to an isolated antibody which binds to a protein with SEQ ID NO Y, wherein Y correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 185 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein Y is 103.

If group 186 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein Y is 104.

Groups 277-368, claim 17, in part, drawn to a method for preventing, treating or ameliorating an undefined medical condition by administering a polynucleotide of SEQ ID NO X encoding a protein of SEQ ID NO Y, wherein X and Y correlate to one of those listed in Table 1A, and correspond to one of the cDNA Clone IDs, respectively. For examples,

If group 277 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein X is 11 and Y is 103.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/01301

If group 278 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein X is 12 and Y is 104.

Groups 367-460, claim 18, in part, drawn to a method of diagnosis of an undefined pathological condition by determining the presence or absence of a mutation in a polynucleotide of SEQ ID NO X, wherein X correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 367 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein X is 11.

If group 368 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein X is 12.

Groups 461-552 claim 19, in part, drawn to a method of diagnosis of an undefined pathological condition by determining the presence or amount of expression of the polypeptide of SEQ ID NO y, wherein y correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 461 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein y is 103.

If group 462 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein y is 104.

Groups 553-644, claim 20, in part, drawn to a method of identifying a binding partner to a polypeptide defined by SEQ ID NO Y, wherein Y correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 553 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein Y is 103.

If group 554 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein Y is 104.

Groups 645-736, claim 22, in part, drawn to a method of identifying an activity in a biological assay by identification of the protein in the supernatant wherein the cell expresses a polypeptide encoded by SEQ ID NO X, wherein X correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 645 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein X is 11.

If group 646 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein X is 12.

Groups 737-828, claim 23, in part, each group directed to a peptide produced by the method for the identifying a binding partner to a polypeptide defined by SEQ ID NO: Y, wherein Y correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 737 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein Y is 103.

If group 738 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein Y is 104.

Groups 829-920, claim 24, in part, drawn to a method for preventing, treating or ameliorating an undefined medical condition by administering a polypeptide of SEQ ID NO Y, wherein Y correlates to one of those listed in Table 1A, and corresponds to one of the cDNA Clone IDs, respectively. For examples,

If group 829 is elected, this correlates to Gene No 1, cDNA clone ID HAPAC39 of Table 1A, wherein Y is 103.

If group 830 is elected, this correlates to Gene No 2, cDNA clone ID HAPAM75, wherein Y is 104.

The inventions listed as Groups 1-920 do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The polynucleotides and polypeptides of each of the clones in Table 1 are unrelated, each to the other. The polynucleotide sequences encode structurally distinct polypeptides and do not share a special technical feature. Furthermore, the technical feature that links the DNA, protein, antibody, methods of cDNA clone HAPAC39 (see Table 1A) is not a contribution over the prior art. See the various documents cited in the search report. Thus the technical feature of the polynucleotide sequence is not special and the groups are not so linked under PCT Rule 13.1. Additionally the claimed methods produce different products and/or different results which are not coextensive and

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US01/01301

which do not share the same technical feature.